DOCKWALKER

CALIFORNIA COASTAL COMMISSION

RECYCLE USED OIL
CA Integrated Waste Management Board

BOATING CLEAN & GREEN

U.S. COAST GUARD AUXILIARY

CAL·BOATING
CALIFORNIA DEPARTMENT OF BOATING AND WATERWAYS
ESTABLISHED 1957

Keep the DELTA CLEAN

PRINTED ON RECYCLED PAPER

A MANUAL FOR PARTICIPANTS IN DOCKWALKER TRAINING

The Dockwalker Handbook

Published by:The Boating Clean and Green Campaign
A product of the California Coastal Commission and the California Department of Boating and Waterways
With funding provided by the State Water Resources Control Board

NOVEMBER 2007

The Dockwalker Handbook

A TRAINING MANUAL FOR ENVIRONMENTALLY SOUND BOATING

Prepared by:
Miriam F. Gordon, Manager
Marina and Boater Education Program

Under the Direction of:
Chris Parry, Public Education Program Manager
Steve Scholl, Assistant Deputy Director
Revised Version Prepared by: Vivian Matuk, California Department of Boating and Waterways, California Coastal Commission, Environmental Boating Program Coordinator

The information contained in this handbook was developed as a part of the California Coastal Commission and the California Department of Boating and Waterways' Boating Clean and Green Campaign with funding provided by the California Integrated Waste Management Board. 2007 revisions funded by the State Water Resources Control Board.

Acknowledgements

We gratefully acknowledge the following people for their comments and review of this document:

M K Veloz, Northern CA Marine Association
Anna Ward, CA Integrated Waste Management Board
Russell Robinson, Recreational Boaters of California
Eric Olsson, University of Washington Sea Grant
George Prows, US Coast Guard Auxiliary

Disclaimers

Publication of the information contained in this document is intended for informational purposes only: Every attempt has been made to assure that the information contained in this publication is accurate. Boaters and boating educators are advised to educate themselves about the risk of handling hazardous materials and about safe boat operation and maintenance. The author, The California Coastal Commission and the California Department of Boating and Waterways' Boating Clean and Green Campaign, the California Integrated Waste Management Board and the State Water Resources Control Board assume no responsibility and disclaim any liability for injury or damage resulting from the use or effect of any product or information specified in this publication.

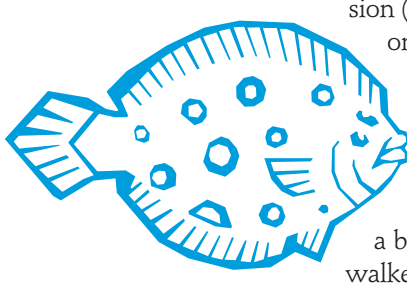
Text relating to laws and regulations is reliable legal reference. To learn about current regulatory requirements and how they are implemented, the reader must contact the appropriate regulatory authorities and consult appropriate legal sources.

The mention of commercial products, services, or equipment or their use in connection with materials reported herein and is not to be construed as actual or implied endorsement of such products, services or equipment. Readers should consult and follow manufacturers' instructions prior to use of any product, service or equipment.

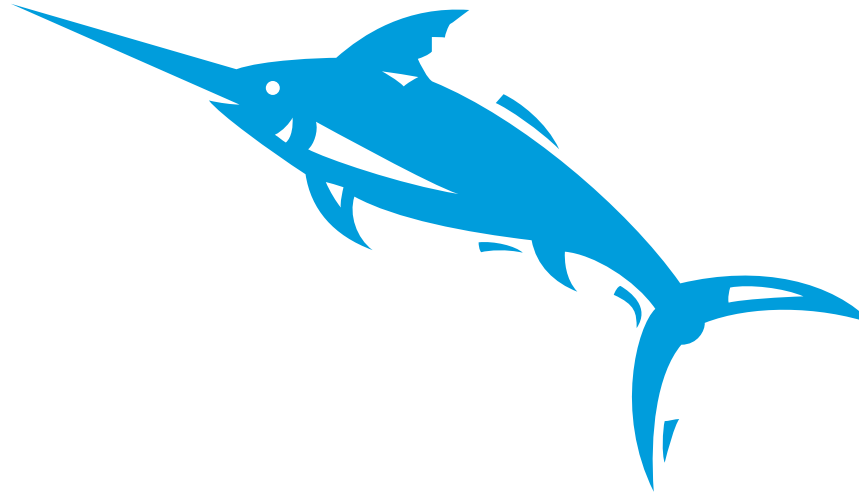
DESIGN / SHEPARD ASSOCIATES / SAN RAFAEL CA

A Note about the Origins and Sources of Dockwalker Training

The non-profit organization, Save Our Shores (SOS) in Santa Cruz, CA, originally started training "Dockwalkers" to conduct environmentally sound boating education in the Santa Cruz area. SOS continues to train Dockwalkers throughout the Santa Cruz and Monterey Bay National Marine Sanctuary.



At the outset of the Boating Clean and Green Campaign in 1996, the Coastal Commission (the Commission) determined that face-to-face boater education would be one of the primary educational strategies used in its outreach efforts. The Commission borrowed the Dockwalkers name and general concept, with permission from SOS, and developed a statewide Dockwalker program. The Commission joined forces with the United States Coast Guard Auxiliary (District 11) in 2000 and together the two organizations began training volunteers as Dockwalkers throughout California. If you know of a boater education program that might benefit from having trained Dockwalkers assist with outreach to boaters, contact the California Coastal Commission and the California Department of Boating and Waterways' Boating Clean and Green Campaign at 1(800) COAST4U (262-7848).

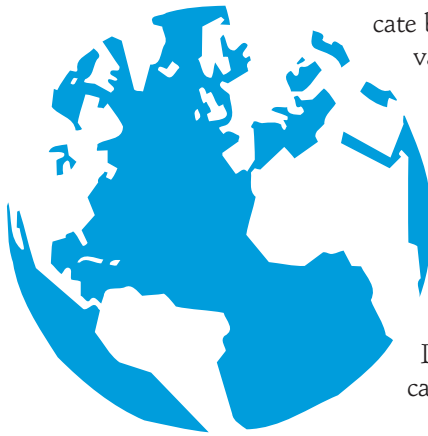


NOTES

TABLE OF CONTENTS

Introduction

California has one of the highest levels of recreational boating activities in the United States. There are more than 900,000 boats registered in the state and an estimated 3 million people actively boat each year on California's numerous waterways. The state offers a diversity of recreational water bodies, making boating one of the most important and popular leisure activities in the state. Since 1960, the number of registered boats in California has increased over 100%.



As boating increases in popularity, it becomes increasingly important to educate boaters about environmentally sound boating practices and to motivate changes in behavior that help reduce pollution from boat operation and maintenance. Recognizing this need, the California Coastal Commission developed the Boating Clean and Green Campaign, a program conducted by the California Coastal Commission and the California Department of Boating and Waterways. The Campaign includes the Dockwalkers Program. Training "Dockwalkers" promotes the most effective strategy for educating boaters: "pier pressure." Out on the piers, near boat launch ramps, and everywhere where boaters can be found, trained Dockwalkers will be sharing the information contained in this publication about environmentally sound boating.

I. What is a Dockwalker?

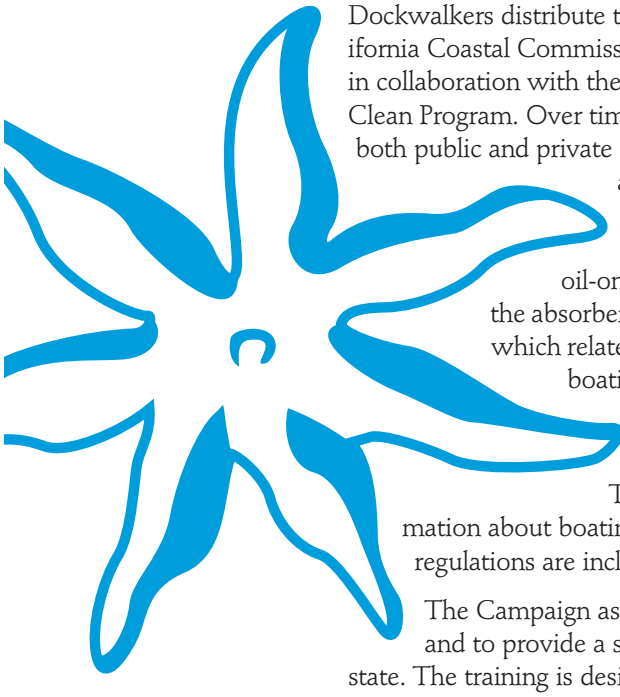
A "Dockwalker" is a trained environmental boating educator. Most Dockwalkers trained by the Commission or the Auxiliary are boaters themselves, thus the program boasts that it exerts a bit of "pier pressure." However, Dockwalkers are not trained to be dock monitors or police; that is, the intent of the program is not to notice and report violations of environmental laws or regulations. Dockwalker training focuses solely on how to *educate* boaters about clean boating practices.

II. Purpose of the Training

The primary purpose of the Dockwalkers training program is to educate and motivate boaters to engage in environmentally sound boating. By talking "face-to-face" to boaters at docks, launch ramps, and other waterfront areas, Dockwalkers have demonstrated their ability to motivate behavior change in the boating community.

By creating a corps of clean boating educators, the program vastly expands the outreach potential of the Boating Clean and Green Campaign. It also promotes collaboration between the Campaign and local, statewide and regional organizations in conducting outreach to boaters. The training is designed to promote the main educational messages of the Boating Clean and Green Campaign.

III. Boater Kits



Dockwalkers distribute the **Free California Boater Kits** that were developed by the California Coastal Commission and the California Department of Boating and Waterways in collaboration with the State Water Resources Control Board and the Keep the Delta Clean Program. Over time, several versions of these kits have been developed, with both public and private organizations providing sponsorship and informational materials. Based on research conducted by the Campaign, the kits were designed to give boaters something that can actually perform one of the recommended practices. Thus, they include an oil-only absorbent . As the primary promotional material in the kit, the absorbents focus on some of the primary messages of the Campaign, which relate to oil recycling, preventing oily discharge, and other aspects of boating and oil-related pollution.

In addition, the kits are designed to promote environmentally sound boating by providing other educational materials. The kits are also designed to promote safe boating. Thus, information about boating safety courses and about state boating navigation and safety regulations are included.

The Campaign aspires to teach even the most seasoned boater something new and to provide a set of uniform talking points for Dockwalkers throughout the state. The training is designed to help Dockwalkers effectively distribute boater kits or other educational materials in a manner that maximizes their educational value.

IV. Using this Handbook

This handbook is a resource for Dockwalkers. It is a companion to the training and provides Dockwalkers with a written version of the information contained in the Dockwalkers training presentation. The following sections include instructions for conducting an educational visit and a discussion of the sources of pollution addressed by the Boating Clean and Green Campaign.

The Handbook includes a few "factoids." These "factoids" are identified with a box and start with the text… **"Did you know…?"** Dockwalkers that memorize and use these factoids will find them particularly helpful in providing examples of the pollution problems addressed by the boater kits and the Dockwalkers program.

Attachments provided at the end of the handbook describe the California Clean Boating Network (CCBN) and provide lists of information resources for free outreach materials. Trainees are advised that this information can become quickly outdated as funding for boater education is generally limited to short-term projects.

V. How to Conduct a Dockwalker Visit

The following advice about conducting a Dockwalker visit is based on staff experience in the Boating Clean and Green Campaign and that of experienced Dockwalkers.

Know Your Audience

A Dockwalker should be familiar with the boating community in his or her target region. This includes knowing what type of boaters one is likely to encounter in the area. It is important to know what the main environmental concerns of this group are likely to be.

For example, a Dockwalker should anticipate that owners of outboard motor boats (primarily fisherman and personal watercraft users) are concerned about restrictions on the use of certain types of outboard engines on certain waterbodies and should be familiar with local restrictions. Dockwalkers can learn more about the local boating community from various sources, including, the local marina operator, a flotilla of the Coast Guard Auxiliary, a local Power Squadron, and the local marine supply shop or bait and tackle shop. Similarly, local boating groups and associations are good resources. To find these groups, check for free local boating guides at the marine supply shop, check the Internet, and consult the last section of this handbook.

Pick the Right Time and Place

The first order of business is to **pick the right time and place** for conducting outreach. Dockwalkers should target the main points of access to the waterway. For example, if there is a large number of fisherman in the area, one should determine whether they mostly use the marina or the boat launch ramp for access to the water and concentrate on that entry point.

As an example of timing, fisherman take their boats out early in the morning and come back late in the day. Boaters are generally eager to get underway and will be less likely to stop and talk when preparing to depart. Try to catch boaters when returning from a trip and after they've trailered the boat or finished docking and shutting down the boat. Dockwalkers often catch boaters in the wash-down area. Attend local boating events, such as, fish derbies, boat shows, yacht club gatherings, and local festivals. These are often advertised in local boating publications, at marine supply shops, and in free boater directories that can be found at the marine supply shop.

Engage the Marine Business Operator in Your Effort

If you are planning to walk the docks or boat launch ramp at a marine business (marina or other marine business), it is important that you visit the operator of that business and familiarize him or her with the Dockwalkers program. Ask for permission to go onto the docks. Show the operator the materials that you will be distributing and stress the benefits of your educational activities to environmental and economic vitality of the business. By informing the marina operator of the educational objectives of Dockwalkers, you should point out the assistance you can provide by helping to preserve the water quality and shore-side cleanliness at the facility. Stress that your role is purely educational and not at all related to enforcement. In most cases you will gain the support of the marina or boat launch ramp operator.

Show the Kit or Educational Materials First

This training is designed with the premise that Dockwalkers will be distributing the free California boater kits described in the section above. Using these kits will make it easy. Boaters really enjoy receiving something of value that helps them to protect the environment. In lieu of the kit, use whatever educational materials you have obtained. The kit or educational materials should be the first thing a Dockwalker discusses because it is really true that people are more receptive when they have received something for free.

Introduce Yourself as an Educator

When you approach a boater, the first thing to convey is that you are a volunteer educator, not a dock monitor or "snitch." Make sure the boaters you visit know that your purpose is to provide information and free materials, not to spot and report violators of environmental laws. This message will put the boaters you visit at ease and make the conversation more relaxed.

Focus on the Boating Clean and Green Main Messages

Use the outreach materials that you are distributing as a guide for the issues that you will be depicting. Be sure that the materials you distribute cover, at a minimum, the primary issues in the Boating Clean and Green Campaign, which are listed below. If you do not have materials to address these issues, consult the section that identifies "sources of educational materials" at the end of this publication for ordering more information.

Main Messages

Recycle used oil and oil filters. Many people don't know that the filters cannot be thrown in the trash and are recyclable.

Used oil is a hazardous waste. Any materials saturated with used oil are also considered hazardous waste.

Use absorbents instead of soaps. Remember to choose "oil-only" absorbents. Use them in the bilge or when fueling. Dispose of spent pads as hazardous waste. Soaps emulsify the oil and add more pollution. Soaps make it impossible to remove oil from the bilge.

Use a shoreside bilge pump-out or a mobile bilge pump-out service to reduce oily discharges.

Change oil using a closed system, such as, a manual or electric pump. Clean up spills on land, boat or water using an absorbent.

For hazardous waste disposal location information call 1(800) CLEANUP (253-2687) or visit www.earth911.org. This number provides local information by zip code.

Reduce spillage from refueling. Leave room for fuel to expand. Choose to refuel on land whenever possible. Install fuel spill prevention devices. Use absorbents for spills.

Raw sewage should never be discharged overboard within the 3-mile territorial limit. Use a pump-out or dump station. No sewage, treated or untreated, should be discharged in a no-discharge area.

Keep all pollutants out of the water, such as boat maintenance and cleaning products, toxic hull paints, and debris from boat maintenance and repair.

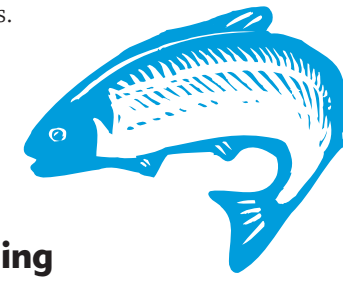
Tips for Talking and Walking

The following tips may be used as guidance for conducting an educational visit. However, each Dockwalker will develop his or her own approach.

These tips have been gathered from experienced Dockwalkers.

- Do your homework first. Be a knowledgeable resource.
- Consult the Boating Clean and Green Campaign sample Dockwalker script.
- Introduce yourself and your purpose.

- Make eye contact and be patient.
- Don't be pushy or insistent. Your job is to educate, not aggravate.
- Remember your role is that of an educator, not an enforcer.
- Free stuff attracts the most attention, so show the boater kit or other materials first.
- When using boater kits, show the bilge pad and talk about oil first.
- Engaging people with questions or some activity gets them involved.
- Try to judge the attention span of your listener.
- Be friendly and helpful, don't make people feel like sinners.
- Give credit to or acknowledge the boater's experience.
- Give credit or acknowledge proper maintenance or practices that the boater employs.
- Humor is an asset. Keep a positive attitude.
- Find out if they have questions. If you don't know the answer, don't make it up, tell them you'll find out.
- Cover the most important stuff.
- Call 1(800) CLEANUP (253-2687) or visit www.earth911.org and find out where the local disposal sites are before you conduct outreach in a particular region.
- Don't use acronyms.
- Know the legal requirements and potential penalties.
- Take a boating safety class.
- Not everyone is interested – its OK, let it go.



VI. Sources of Boat Pollution Addressed by Dockwalkers Training

The sources of boat pollution that are addressed in the training, in this Handbook, and in the Boating Clean and Green Campaign are:

- ✔ Oil and fuel
- ✔ Boat cleaning and maintenance
- ✔ Marine debris
- ✔ Sewage
- ✔ Hazardous and solid waste
- ✔ Graywater

The following sections address each of these pollution sources and ways to reduce pollution from boats. There are several other environmental issues associated with boating, including invasive species introduction and fish catch limits. These topics are not covered in the training; check the Information Resources section to find information about these issues.

VII. Oil and Fuel Pollution

The mains sources of oil and fuel pollution that are addressed by the Boating Clean and Green Campaign outreach are: (1) operation of marine engines; (2) bilge discharges; (3) oil changes and engine maintenance; and (4) fuel spills. Other sources, such as sunken or abandoned vessels, are not typically addressed in discussions with boaters.

1. Operation of Marine Engines

PROBLEMS

According to the U.S. Environmental Protection Agency, traditional two-stroke outboard engines and personal watercraft engines (carbureted 2-stroke engines) exhaust up to 30% of their fuel unburned. Most of the emissions result in air pollution, but a portion also discharges to the water, causing pollution from heavy metals, and other toxics contained in petroleum hydrocarbons.

SOLUTIONS

Outboard and PWC Standards. In December 1998, the California Air Resources Board adopted emission standards for spark-ignition (i.e., gasoline) outboard engines and personal watercraft. These standards include progressive limits on exhaust emissions that are more stringent than current federal emission requirements. The standards began with 2001 models of personal watercraft and outboard engines. These engines are 75% cleaner than the old ones. The standards also ensure that year 2008 outboard engines and personal watercraft will be approximately 90% cleaner than pre-regulated engines.

The standards also include labeling on new engines based on emission levels. The labels should be included in a readily visible location (cowling or hull). Additionally, a hang-tag must be affixed to the engine by the engine manufacturer or boat builder and must be displayed for all prospective buyers to see prior to sale. A hang-tag is a non-permanent label that indicates the relative cleanliness of the engine by displaying a graphic with a quantity of stars from one to four, with four stars representing the cleanest engines currently available. At present, the cleanest outboard engines and personal watercraft have been certified to a three-star rating.

A common misconception of many boaters is that the standards restrict boating on California lakes or reservoirs. This is not true. The standards are technology neutral and apply only to engine manufacturers, placing no obligations on existing boat owners. However, many water districts and other agencies that are responsible for managing access to California's lakes, rivers, and reservoirs do place usage restrictions on outboard engines and personal watercraft based on the engine's emissions certification level. If a reservoir is closed to certain types of boating, it is the result of a local water agency's efforts, not the State's. This is one reason why consumers should purchase boats with the cleanest engines available to protect their investment long into the future.

Inboard and Sterndrive Engines. In July 2001, the California Air Resources Board adopted additional emission standards for spark-ignition inboard and sterndrive marine engines. Implementation of these multi-phase standards commenced in 2003 and includes a catalyst-based emission limiting phase in 2007 for several engine models. The majority of year 2008 inboard and sterndrive engines in California will be equipped with catalysts, enabling then to comply with the stringent emission requirements adopted by the Board. Currently, there are no federal emission requirements for inboard and sterndrive engines. In addition to making vessels with California-certified inboard and sterndrive engines the cleanest type of pleasure craft currently available, the incorporated three-way catalysts should all but eliminate the risk of carbon monoxide poisoning to vessel occupants. This should be a considerable incentive for boaters to purchase boats with new California-certified year 2008 or later engines.

The labeling requirements for inboard and sterndrive engines are similar to those for outboard engines and personal watercraft such that engine manufacturers must permanently affix an emissions performance label and a star label to their 2003 and later engines, and that hang tags must be displayed to prospective buyers at the time of sale. The cleanest inboard and sterndrive engines (i.e., those certified to catalyst emission levels) are available with four-star ratings.

The Campaign advises boaters to purchase the lowest emission engine appropriate for their boat and the manner in which they use the boat. Dockwalkers should point out the new labeling program and encourage boaters to look for the hangtags when purchasing a new engine.

2. Preventing Oily Bilge Discharges

PROBLEMS

Like all engines, marine engines tend to leak oil and fuel. How much leakage depends on the age of the engine and its parts, the amount of use and how well the engine is maintained. Boats are not designed to prevent oily discharge from engines to the environment. The bilge or the bottom of the boat takes on water and this is generally where leaks and drips of other substances end up. In smaller boats, there may or may not be an automatic bilge pump to evacuate the water. Most larger boats have an automatic pump that is engaged when the level of water reaches the level of the pump sensor. When oil and fuel are present in the bilge, the bilge pump will discharge the oil, fuel and other liquids present in the bilge to the environment.

Oil and other products end up in the bilge also as a result of engine maintenance activities performed by boaters. Research conducted by the Boating Clean and Green Campaign in 1998 shows that 76% of boaters whose boats require an oil change in California are “do-it-yourselfers” (DIYs). That is, they change the oil on their boats themselves. Changing oil on a boat can result in much spill and mess, more so than on a car. As there is very little room between the bottom of the crankcase and the bottom of the boat, boaters often have trouble capturing drained oil from the crankcase without spilling oil into the bilge.

A small number of DIYs (27%) use a closed system, such as an oil change pump, to perform the oil change. This can result in a cleaner oil change as the oil is extracted by a tube through the dipstick to a container. However, the process can still be messy if the boater fails to transfer the oil using a closed container.

SOLUTIONS

Preventive Engine Maintenance

The first recommendation to boaters for keeping leaking oil and fuel out of the water is to prevent the problem in the first place. Here are some tips to keep in mind.

1. **Make sure it is legal and safe to do the repairs and maintenance to your boat.** Permits may be required and in-water repairs prohibited. Check with the marina manager to approve major repairs.
2. Keep engines well tuned and operating at peak efficiency.
3. Choose Coast Guard-approved alcohol-resistant fuel lines.
4. Check fuel lines and fuel filters for loose connections or deterioration.
5. When replacing hoses, ensure new sections are the right length. Hoses that are too long or stretched to fit can kink or collapse.
6. Replace front & rear crankcase seals and hoses and corroded oil pans.
7. Clean engine parts on land, over a leak-free container.
8. Secure all lines and hoses and protect them from chafing, abrasion or accidental damage that can cause leaks. Hydraulic lines running along open decks and ladders are particularly vulnerable to damage.
9. Use oil-only absorbents during maintenance. Keep one under the engine and use them while cleaning parts.
10. Know your valves. To prevent accidental discharges, post a schematic of all fuel and oil systems. Label or color-code fluid lines and valves.
11. Avoid DIY electrical alterations and major engine repairs which should be performed by professional technicians.

Use "Oil-Only" Absorbents

To prevent oily discharge, boaters should place hydrophobic ("oil only") absorbents in the bilge and under the engine and use them to clean spills of oil and fuel. Since used oil is a hazardous waste in California, so are absorbents that are saturated with used oil. These absorbents must therefore be disposed of properly. Boaters should be instructed to call 1(800) CLEANUP (253-2687) for local disposal information if they do not know where to take hazardous wastes.

Oil absorbents must be secured in the bilge in a manner that will not clog or foul the bilge pump or the sensor or float of the pump. Boaters should also follow safety precau-

tions when handling flammable materials. Please see the cautionary note in section VII.

Dockwalkers should recommend that boaters use absorbents INSTEAD of soaps. Soaps emulsify oil, therefore, dispersing hydrocarbons through the water column and making it impossible to remove them from the water. Applying soap to remove an oil sheen is illegal. Violators are subject to criminal and civil maximum penalties of up to $32,500 per incident. Absorbents that are exposed to soaps or detergents are usually rendered ineffective.

Oil absorbents are the least expensive method boaters can use to control oily discharge. Remember, preventive engine maintenance is the best strategy for preventing oily discharge.

Use a Bilge Pump-Out Facility

A bilge pump-out facility pumps oily water from the bilge to a land-based facility that uses an oil-water separation system. The oil is reclaimed for recycling. This is a good option for a really messy bilge that can't be cleaned with one or two absorbents. However, some systems cannot process emulsified oil (when soap is added). These marinas need to stress a no-soap policy and educate boaters about use of bilge pump-out systems. There are only a few such facilities in California. For a complete list, refer to the Boating Clean and Green Website (www.coast4u.org - Click on Boating Clean and Green), or call the CA Coastal Commission and the California Department of Boating and Waterways' Boating Clean and Green Campaign for a reprint at 1(800) COAST4U (262-7848). **Never use a sewage pumpout facility to pump out your bilge!**

Use a closed system for oil changes

For do-it-yourself oil changers:

1. use a portable oil change pump;

2. drain oil into a closed container for transfer to a recycling location;

3. use absorbents to clean spills (and dispose of them as hazardous waste); and

4. recycle used oil and oil filters.

Steam Cleaning Services

To clean an oily engine compartment or bilge that cannot be adequately cleaned using absorbents, Dockwalkers should recommend that boaters use a steam cleaning service. The service should collect the oily water for treatment by an oil-water separator or disposal as a hazardous waste. The service should NOT discharge oily water to the waterway.

Avoid Bilge Cleaners which contain detergents or emulsifiers. These chemicals emulsify the oil/fuel into the water so both can be pumped overboard into the marine environment. Your bilge may be clean but the water isn't.

Oil Recycling Information
1(800) CLEANUP (253-2687) provides information about where to recycle used oil and filters and where to dispose of hazardous waste.

Keep oil and other wastes segregated so oil can be recycled. Know your local regulations regarding quantities of hazardous waste that can be transported.

3. Fuel Spills

PROBLEMS

Fuel vent design: In general, the fuel tank vent and fuel filler connection are poorly designed. Fuel can get into the water at the fuel filler fitting and from the fuel tank air vent. This results in spillage when the tank is full, or when fuel expands from heat, or when rocking of the boat results in some fuel spilling out the air vent.

Variable flow rates of fuel pumps can cause boaters to overfill unintentionally.

Automatic shut-off nozzles don't cease fuel flow until the tank is completely full. If the flow is not shut off before the tank is filled, the backpressure in the system will force some amount of fuel out of the fill or the vent.

Overfilling the tank or "topping off" is a common practice at the fuel dock.

Fuel expands when pumped out of cool underground storage and even more on hot days. If there's no room for expansion in the fuel tank, fuel spills out the air vent.

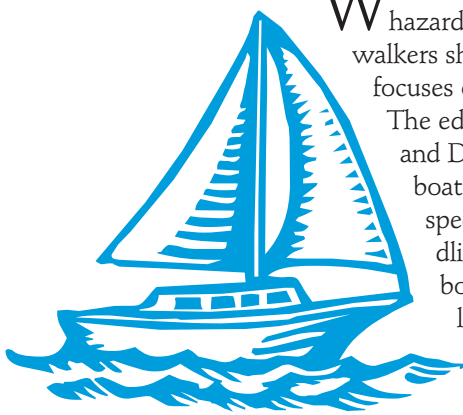
SOLUTIONS/BOATS WITH BUILT-IN FUEL TANKS:

- Fill tanks slowly and carefully. Learn to gauge the capacity of the tank.
- Leave at least 10% extra space in the tank for expansion.
- After filling the tank, clean any drops off the nozzle and deck with an absorbent.
- Install a fuel/air separator or whistle in the vent line to prevent overfilling.
- When filling, listen to or keep your hand at the air vent. A pronounced flow of air is emitted when the tank is nearly full.
- Automatic shut-off nozzles may not work fast enough, so don't use the automatic trigger lock, don't overfill, and keep an absorbent ready to catch spills and overflow. Follow safety precautions (see page 12) for handling flammable materials and disposal of hazardous wastes.
- Prevent fires by shutting off motors and turning off electric equipment before fueling. Ventilate the boat and make sure there is no odor of gasoline anywhere.
- Prevent stale gas by adding fuel stabilizer at season's end to preserve fuel quality.
- Leave the tank full (with room for fuel to expand) to reduce corrosion and condensation during off-season.

SOLUTIONS/OUTBOARD ENGINES

- Fuel on land whenever possible.
- Mix oil in fuel according to manufacturer's recommendations.
- Take portable tanks out of the boat and fill them on the dock.
- Keep the filling nozzle in contact with the tank.
- Use funnels to fill portable tanks and "oil-only" absorbents.
- Prevent fires by shutting off motors and turning off electric equipment before fueling. Ventilate boat and make sure there is no odor of gasoline anywhere.
- Store fuel in approved marine containers, and keep away from sources of ignition.
- Prevent stale gas by leaving 2-stroke empty during long periods of inactivity.

VIII. Safety Issues



When discussing the use of absorbents on oil and fuel spills, the disposal of hazardous wastes, and conducting engine maintenance and repair, Dockwalkers should warn boaters to keep safety uppermost in mind. This training focuses on environmental issues and is not a comprehensive course in safety. The educational visits conducted by Dockwalkers are not safety inspections and Dockwalkers are not expected to provide a comprehensive course in boat safety during the short educational visit. However, when discussing specific maintenance and repair issues with boaters, or discussing the handling of saturated absorbents and fuel spills, Dockwalkers should advise boaters to educate themselves about compliance with boating safety laws and regulations by taking a boating safety course. Boaters should be reminded to use caution when handling hazardous wastes, flammable materials, and conducting boat maintenance and repair.

Before Starting the Engine, Keep Safety in Mind

Boaters should ventilate the engine compartment and bilge when returning to the boat and before starting the engine or turning on lights.

Use Caution with Flammable Materials

Oil, gasoline, diesel, solvents and absorbent materials that are saturated with these products are flammable. Boaters should use caution when handling flammable and hazardous materials. CA boating law requires that certain boats carry fire extinguishers and provide ventilation systems for bilges and tank compartments. Boaters should check with the US Coast Guard and state boating regulatory agencies for boating safety information and the requirements regarding ventilation and fire extinguishers. Dockwalkers should recommend that fuel-soaked absorbents not be kept on board unless stored safe-

ly. Oil and fuel saturated absorbents must be disposed of at a hazardous waste disposal facility. Some fuel dock operators and marinas may provide disposal or information about disposal.

The following safety tips should be kept in mind:

1. Oil, gasoline, diesel, solvents, and saturated absorbents are flammable.

2. If kept onboard, store safely and keep away from ignition sources.

3. Physical contact can be harmful. Always use gloves. Work in well-ventilated areas.

4. Ventilate bilge and engine areas. Inspect for water, oil, and fuel leaks and repair.

5. Ventilation systems, fire extinguishers, and other safety measures should comply with Coast Guard standards and state boating law.

6. Saturated absorbents must be disposed of as hazardous waste. Call 1(800) CLEANUP (253-2687) to find closest location. Otherwise, check if the fuel dock or nearby marina will properly dispose of fuel-soaked absorbents.

7. Eliminate unnecessary storage of flammable materials in boat lockers.

Before Starting Repairs, Keep Safety in Mind

Dockwalkers should keep the following tips on safety in mind when discussing specific repairs with the boater.

1. Never start working while the engine and other machinery are hot. Let them cool and relieve pressure from all closed fluid systems before starting repairs.

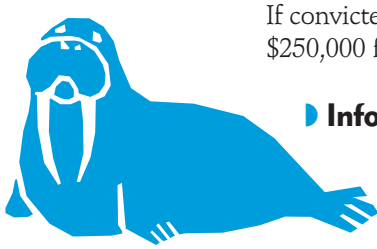
2. Since fires cause catastrophic pollution and injury, extinguish and remove all ignition sources from the work area. Before conducting repairs, disconnect batteries or power supplies. Make sure lights are shielded.

3. Remove oil, debris and clutter from your work area.

4. Keep a fire extinguisher ready. Make sure these comply with CA boating law.

5. Know the location of spill response materials, such as absorbent pads and containment booms.

6. If you see or cause a spill of oil or chemicals, report it using the following numbers: the federal spill reporting hotline at 1 (800) 424-8802 and the state hotline 1 (800) OILS911 (645-7911). Failure to provide notification of a known discharge is unlawful. If convicted,maximum punishment is 5 years imprisonment and/or fine up to $250,000 for anindividual, $500,000 for an organization.



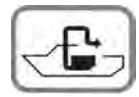
Information about Boating Law and Safety Issues

Dockwalkers should refer boaters to the "ABCs of the California Boating Law" published by the CA Department of Boating and Waterways. Some boater kits may contain this publication. To contact the Department, call

1(916) 263-1331.
For Boating Safety Courses contact U.S. Coast Guard Auxiliary
http://public.d11nuscgaux.info or US Power Squadrons (800) SEA-SKILL (732-7545).

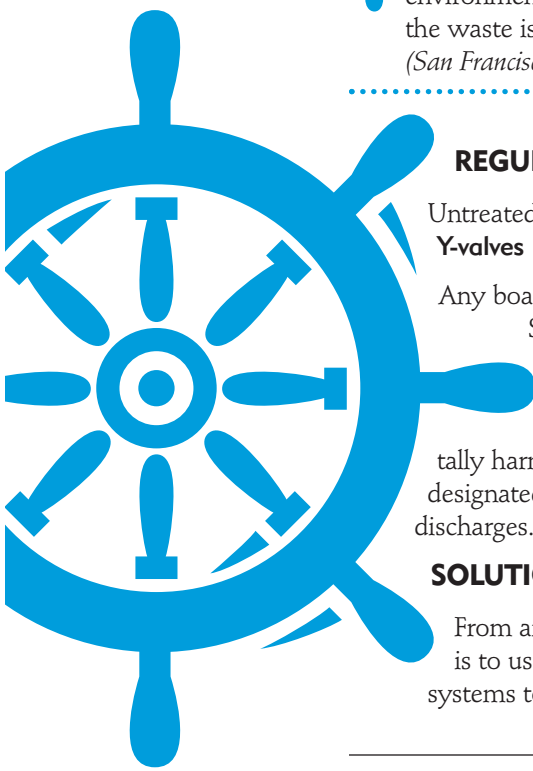
IX. Sewage

PROBLEMS



When boaters discharge treated or untreated sewage, the environmental impacts include increased biological oxygen demand (BOD) which is a measure of the dissolved oxygen required to decompose organic matter in the water. An increase in organic matter can reduce the dissolved oxygen available for respiration by fish and aquatic organisms. When the BOD is too high, fish and other marine organisms essentially suffocate. According to the CA Department of Boating and Waterways, BOD in wastewater from recreational boats can be up to 8 times as high as that from untreated municipal sewage. In addition, sewage discharge can contaminate shellfish beds and other resources with fecal coliform bacteria. Researchers have shown a direct relationship between the number of boats in a sample area and increased fecal coliform bacteria levels in both the water and shellfish.

? ***Did you know…***
one toilet flush of untreated sewage from a boat can cause the same environmental impact as 10,000 flushes of a home owner's toilet where the waste is processed by a municipal sewage treatment system?
(San Francisco Regional Water Quality Control Board)



REGULATIONS

Untreated sewage cannot be discharged within the 3-mile territorial limit.
Y-valves must be secured in a closed position within the 3-mile limit.

Any boat with an installed toilet must have a Coast-Guard-approved Marine Sanitation Device (MSD). There are three types. Type I is a chemical treatment system. Type II relies on chemical treatment and maceration. Type III is a holding tank. Types I & II can be discharged within the 3-mile territorial limit, although the discharge can be environmentally harmful. It is illegal to discharge treated or untreated wastes into federally designated No Discharge Zones. Fines of up to $2,200 can be imposed for illegal discharges.

SOLUTIONS/GENERAL

From an environmental perspective, the best method for sewage management is to use a holding tank or port-a-potty and allow municipal sewage treatment systems to process waste. Boaters should be encouraged to use the pumpout or

dump station. The sewage pumpout logo (inserted at the beginning of this section) indicates the location of a sewage pumpout facility. For a list of sewage pumpout facilities, refer to the Boating Clean and Green Campaign website at www.coast4u.org (click on Boating Clean and Green). The state is trying to increase the number of pump-outs available through grant funding for installation. Information about this program can be obtained by calling the Department of Boating and Waterways at (916) 263-1331 or by visiting their website at http://www.dbw.ca.gov. Call 1-800-CLEANUP (253-2687) or visit www.earth911.org or www.dbw.ca.gov to find pumpout locations near you.

SOLUTIONS/BOATS WITH TOILETS

- Make sure your MSD is Coast Guard certified.
- When in "no-discharge" zone, lock or secure MSDs closed so they can't empty overboard.
- If your boat has a Y-valve and through hull fitting, always keep them locked and closed when inside coastal waters, bays, rivers and lakes.

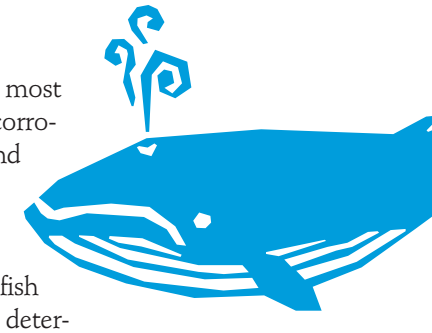
SOLUTIONS/BOATS WITHOUT TOILETS

- Make shore-side restroom stops every few hours.
- Use a portable toilet on board your vessel
- Only empty portable toilets at shore-side dump stations or at home

X. Boat Cleaning and Maintenance

Any work conducted on or near water greatly increases the threat to the marine environment. Spills from paint and other products are hard to prevent and even harder to contain. Since boat cleaning and maintenance is a fact of life for the boat owner, it is important to consider methods that reduce the environmental impact of these activities.

PROBLEMS



Marine cleaning products are typically more toxic than most household cleaners. They contain potent caustics and corrosives. Products containing phosphates, such as soaps and detergents, can cause excessive algae growth that depletes the oxygen necessary to sustain marine life. A high concentration of phosphate soaps can also cause fish to suffocate by destroying the natural oil on fish gills that helps them take in oxygen. In addition, many detergents contain heavy metals which bioaccumulate through the food chain.

SOLUTIONS FOR THE BOTTOM-SIDE

- **Save it for the boat yard!** Underwater hull cleaning can release copper and other pol-

lutants to the marine environment. It's best to save heavy-duty bottom-side maintenance work for a boat yard that has a waste collection and treatment system. However, when a boat owner hires a diver to clean the boat bottom, the diver should never create a colored plume of paint when cleaning the bottom of the boat. Abrasive cleaning techniques should not be employed.

- **Choose the right bottom paint.** Conventional anti-fouling paints release biocides that inhibit marine growth. Copper compounds are the most common biocide. Copper is a primary contaminant of California's largest bays and estuaries. Boaters should seek less toxic options, as they become available on the market. "Hard" copper paint, vinyls, and coatings such as Silicon and Teflon are a few of the new coatings.

- **Keep the boat out of the water during storage.** A boat that is not used often can be kept in dry storage to prevent marine growth. New hoists that float in a slip keep the boat bottom out of the water.

- **Protect your investment**. Reduce the need for cleaning and maintenance by purchasing a canvas cover for your boat.

- **Frequent unabrasive cleaning** can minimize marine growth and thereby extend the life of the bottom paint.

SOLUTIONS FOR THE TOP-SIDE

- **Save it for the boatyard!** Plan maintenance so it's done all at once when the boat is out of the water.

- **Limit discharges.** In-water boat maintenance and repair activities can cause harmful discharges. It's important to contain any drips, spills or discharges of pollutants when the boat is in the water. Violators are liable for the cost of the clean up and subject to substantial civil penalties and/or criminal sanctions, including fines and imprisonment for unlawful discharges. The criminal penalties range from: One to 15 years imprisonment and/or, fines between $2,500 to $500,000. Civil penalties of up to $32,500 per incident can be imposed for unlawful discharges.

- **Frequent, less-toxic cleaning.** Many boat soaps contain phosphates, arsenic, and other degreasing agents. Phosphates can contribute to algae growth and lead to depletion of oxygen in the marine environment. Arsenic and heavy metals can bioaccumulate in the food chain. The impact of cleaning a boat can be reduced by:

1. scrubbing and rinsing with freshwater after each trip;

2. using only phosphate-free, chlorine-free, and biodegradable soaps; and

3. using products conservatively (apply small amounts with a cloth and wipe).

- **No-discharge surface preparation**. Keep dust, paint, wood debris, chemical strippers, metal shavings, and oil from falling into the water.

1. Save the work for the boatyard or whenever the boat is out of the water.

2. Use vacuum sanders, painters, and grinders.

3. Keep oil absorbents or rags nearby to wipe spills and dispose of as hazardous waste. Call 1(800) CLEANUP (253-2687) for locations.

4. Suspend a tarp or visquine sheet between the boat and the dock to catch any spills, dust or debris that would otherwise end up in the water.

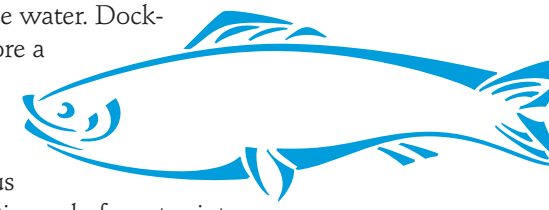
5. Whenever possible, do the work on land. Always use tarps to catch spills and drips.

6. Keep caps on bottles and containers to prevent spills. Recycle empty containers.

XI. Hazardous Waste Management

PROBLEMS

Boats require constant maintenance and boaters frequently use harsh chemical cleaners and products to get the job done. Without convenient facilities nearby, boaters often leave leftover paints, solvents, strippers, and other products at the dock or near the water. Dockboxes and boats often are used to store a myriad of toxic cleaning products. These wastes and hazardous materials can spill or leak into the environment. Improper disposal of hazardous wastes into the dumpster is illegal. Disposal of wastes into storage containers for other segregated wastes can drastically increase disposal costs.



SOLUTIONS

Apply the 3 Rs. Reduce the amount of hazardous materials you use. Reuse any leftover products (save them or give them away). Recycle as much as possible.

- **Call 1(800) CLEANUP (253-2687)** for waste disposal and recycling information in your area.
- **Used oil and filters** are considered hazardous wastes. They cannot be put in the trash and should be recycled. Ask if your marina collects used oil. If not, find out the recycling location nearest you by calling 1(800) CLEANUP (253-2687).
- **Antifreeze** should be separated from other waste. It can usually be recycled. All antifreeze recyclers will accept ethylene glycol (blue or green) and some accept propylene glycol (pink) for recycling. Do not mix with used oil.
- **Lead-acid batteries** can be recycled. Any CA retailer who sells you a new battery must recycle the old one. Never store batteries on the dock. If your marina does not collect old batteries for disposal, call 1(800) CLEANUP (253-2687) to find out where to dispose of hazardous wastes.
- **Freon.** Venting Freon into the atmosphere is illegal. Only certified technicians can

purchase Freon, service units, and handle Freon.

- **Zincs** can be recycled at a local scrap metal recycler.

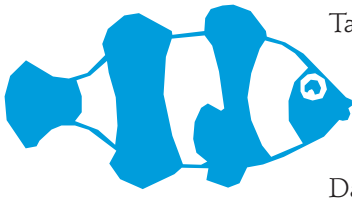
XII. Less Toxic Shopping

PROBLEM

Since boat maintenance and repair jobs have to withstand tough elements (weather, saltwater, and freshwater), many of the products used in boat maintenance and repair are even more caustic and corrosive than those used at home. It is difficult to find less toxic products, but boaters can reduce the quantity and toxicity of products used to clean and maintain their vessels by following a few simple tips.

SOLUTIONS

- **Use Elbow Grease Instead.** You can reduce the amount of toxic cleaners you use by scrubbing harder and using fresh water to rinse. Some cleaning jobs can be accomplished without any soap at all.
- **Use Less Toxic Alternatives.** Shop for products that are free of chlorine, phosphates, formaldehyde, and lye. Look for labels that indicate the product is biodegradable. Take time to read the label. Federal law requires that most hazardous products include specific types of information about the product on the label. A signal word, such as, "danger/poison," "warning," or "caution," can give you a general indication that the product may be toxic. If you want more information regarding the product's contents, ask the retailer or manufacturer for the "Material Safety Data Sheet." This sheet will list any constituents considered hazardous by the federal government.



- **Buy and Use Only the Amount You Need.** Buying bulk quantities may seem cheaper, but if you purchase much more than you need, you are throwing away your money and hazardous wastes at the same time.

XIII. Solid Waste and Marine Debris

Marine debris is bad for the environment and for boats as well. Marine debris endangers the safety and livelihood of fishermen and recreational boaters. Nets and monofilament fishing line can obstruct propellers and plastic sheeting and bags can block cooling intakes.

Did you know…

Monofilament fishing line, capable of lasting over 600 years in the environment, has been the number one form of wildlife entangling debris found during the International Coastal Cleanup for the past 18 years. *(The Ocean Conservancy)*

In a survey conducted in Newport, Oregon, 58% of anglers indicated that they had experienced vessel problems due to plastic debris, and incurred an average repair cost of $2,725 per vessel (Pacific States Marine Fisheries Commission).

Help Reduce Marine Debris

- **Leave it ashore.** Remove excess packaging before leaving shore.
- **Avoid excess packaging.** Purchase items in bulk. Choose products with minimal and/or recyclable packaging. Bring food from home in reusable containers.
- **Prevent overboard disposal.** Don't let fishing line, Styrofoam, plastic bags, or six pack rings get released or blown overboard. Stow trash carefully and bring it back to shore.
- **Clean up litter and debris.** If you can reach it safely, use a net to pick up litter or marine debris and dispose properly (recycle, if possible).
- **Keep cigarette butts out of the water.** Cigarette butts are the most common type of litter found washed up on beaches and are not biodegradable. Place extinguished cigarette butts in the trash.
- **Watch the "net" effect.** Make sure fishing line and net return to port with you.

Did you know…
Since 1985, California Coastal Cleanup volunteers have picked up 11,968,778 pounds of debris. 40% of the debris is attributed to cigarette butts. *(California Coastal Commission)*

XIV. Gray Water

Gray water is the soapy water from boat sinks and showers. The term is also used to describe the dirty rinse water from washing a boat.

- **Use shoreside facilities whenever possible**. If you're just out for the day, bring home dirty dishes. Take showers at home.
- **Less is more.** Use less product and more elbow grease. A quick rinse with freshwater after each trip minimizes the need for harsh cleaners. When cleaning, use the smallest amount of cleaning product necessary to get the job done.
- **Use phosphate-free and biodegradable soaps.** Check the shelves of your supermarket or marine supply shop.

XV. Information Resources

Who to Contact for More Information

General Boating Information

Department of Boating and Waterways
(916) 263-1331

US Coast Guard Boating Safety
http://public.d11nuscgaux.info

Boating Courses

US Coast Guard Auxiliary
http://public.d11nuscgaux.info

US Power Squadrons
(800) SEASKIL (732-7545)

Recycling and Waste Disposal

To find the location of the hazardous waste disposal center or used oil collection facility nearest you, call **(800) CLEANUP (253-2687).**

Sewage Disposal Information

Department of Boating and Waterways
(916) 263-1331

Reporting Spills

Oil and Chemical Spill Reports
(800) 424-8802 and **1(800) OILS911 (645-7911)**

Information about Dockwalkers and the Boating Clean and Green Campaign

California Coastal Commission
California Department of Boating and Waterways
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219
(800) COAST4U (262-7848) or (415) 904-5200

Coastal Clean-up & Adopt-A-Beach

California Coastal Commission
(800) COAST4U (262-7848)

The California Clean Boating Network (CCBN)

The CCBN is a collaboration of boaters, government, environmental, business, and academic organizations working together, primarily through education, to decrease boating-related pollution. Members include marine businesses, marine and boating associations, harbor patrol officers, port district commissioners, city and county officials, state agencies, the USCG & Auxiliarists, National Estuary Projects, environmental organizations and others interested in boating throughout the state.

Each of the CCBN Chapters (listed below) meets quarterly to network, share information, focus on new products and technologies, and identify new methods for promoting clean boating. Meetings often include guest speakers and special presentations. For copies of recent meeting agendas and announcements for upcoming meetings, consult the website address provided below.

The CCBN has developed an on-line Catalogue of Marina and Boater Pollution Education Materials. Look on our website at www.coastal.ca.gov/web/boatbib.html

For more information:

Northern California Chapter
Vivian Matuk, California Department of Boating and Waterways
and California Coastal Commission
(415) 904-6905
vmatuk@coastal.ca.gov

Sacramento - San Joaquin Delta Chapter
Vivian Matuk, California Department of Boating and Waterways
and California Coastal Commission
(415) 904-6905
vmatuk@coastal.ca.gov

Dan Jordan
Keep the Delta Clean Program
Contra Costa County Watershed Program
Phone: (925) 313-2023
djord@pw.cccounty.us
www.KeepTheDeltaClean.com

Southern California Chapter
Grace Lee, Santa Monica Bay Restoration Foundation
(213) 576-6648
glee@waterboards.ca.gov

Please see the CCBN Website at www.coastal.ca.gov/ccbn/ccbndx.html

Clean Boating Websites

National Organizations

National Clean Boating Campaign
www.cleanboating.org

Center for Marine Conservation - Marine Debris Information
www.oceanconservancy.org

US Coast Guard - Marine Safety and Environmental Protection website
www.uscg.mil/hq/g-m/gmhome.htm

US Environmental Protection Agency:

Managing Pollution from Boating and Marinas
www.epa.gov/owow/nps/facts/point9.htm

Clean Marinas Environmental and Business Success Stories
www.epa.gov/owow/nps/marinas

National Management Measures to Control Nonpoint Source Pollution from Marinas and Recreational Boating
www.epa.gov/nps/mmsp/index.html

California

California Coastal Commission and California Department of Boating and Waterways - The Boating Clean and Green Campaign- and the CA Clean Boating Network
www.coastal.ca.gov/ccbn/ccbndx.html

California Department of Boating and Waterways – Vessel Pumpout Information
www.dbw.ca.gov/pumpout.htm

Keep the Delta Clean Program
www.KeepTheDeltaClean.com

San Diego County- Sea Grant Extension – Clean boating
commserv.ucdavis.edu/cesandiego/seagrant/boating.htm

Clean Marinas California Program
www.cleanmarinascalifornia.org

Santa Monica Bay Restoration Foundation – Boats and Marinas
www.santamonicabay.org

Earth 911.org
www.earth911.org

Other States/Countries

Maryland Clean Marina Initiative
www.dnr.state.md.us/boating/cleanmarina

Florida Clean Marina Program
http://www.dep.state.fl.us/cleanmarina

Virginia Clean Marina Program
http://www.virginiacleanmarina.com/